



UNITED STATES PATENT AND TRADEMARK OFFICE

SO
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,649	02/26/2002	Andrew J. Whitton	091395-9214 (4596-TC-AU)	8642

23585 7590 01/13/2003

MICHAEL BEST & FRIEDRICH LLP
3773 CORPORATE PARKWAY
SUITE 360
CENTER VALLEY, PA 18034-8217

EXAMINER	
FLANDRO, RYAN M	
ART UNIT	PAPER NUMBER

3679

DATE MAILED: 01/13/2003

S

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/085,649	WHITTON ET AL.
Period for Reply	Examiner	Art Unit
	Ryan M Flandro	3679
<i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i>		
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.		
<ul style="list-style-type: none"> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely. - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). - Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b). 		
Status		
1) <input type="checkbox"/> Responsive to communication(s) filed on _____.		
2a) <input type="checkbox"/> This action is FINAL. 2b) <input checked="" type="checkbox"/> This action is non-final.		
3) <input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.		
Disposition of Claims		
4) <input checked="" type="checkbox"/> Claim(s) <u>1-18</u> is/are pending in the application.		
4a) Of the above claim(s) _____ is/are withdrawn from consideration.		
5) <input type="checkbox"/> Claim(s) _____ is/are allowed.		
6) <input checked="" type="checkbox"/> Claim(s) <u>1-18</u> is/are rejected.		
7) <input type="checkbox"/> Claim(s) _____ is/are objected to.		
8) <input type="checkbox"/> Claim(s) _____ are subject to restriction and/or election requirement.		
Application Papers		
9) <input type="checkbox"/> The specification is objected to by the Examiner.		
10) <input checked="" type="checkbox"/> The drawing(s) filed on <u>26 February 2002</u> is/are: a) <input type="checkbox"/> accepted or b) <input checked="" type="checkbox"/> objected to by the Examiner.		
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).		
11) <input type="checkbox"/> The proposed drawing correction filed on _____ is: a) <input type="checkbox"/> approved b) <input type="checkbox"/> disapproved by the Examiner.		
If approved, corrected drawings are required in reply to this Office action.		
12) <input type="checkbox"/> The oath or declaration is objected to by the Examiner.		
Priority under 35 U.S.C. §§ 119 and 120		
13) <input type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).		
a) <input type="checkbox"/> All b) <input type="checkbox"/> Some * c) <input type="checkbox"/> None of:		
1. <input type="checkbox"/> Certified copies of the priority documents have been received.		
2. <input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____.		
3. <input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).		
* See the attached detailed Office action for a list of the certified copies not received.		
14) <input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).		
a) <input type="checkbox"/> The translation of the foreign language provisional application has been received.		
15) <input type="checkbox"/> Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.		
Attachment(s)		
1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)		
2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)		
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.		
4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____.		
5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)		
6) <input type="checkbox"/> Other: _____.		

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the configuration wherein “the shaft forward end is inserted in the coupling element slot” (claim 9) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1, 2, 5, 9 are objected to because of the following informalities:

- a. Claim 1. Reference to the “shaft upper surface” in lines 7-8 of claim 1 should be changed to “upper shaft surface” for consistency with reference to this limitation in line 5 of the claim.
- b. Claim 2. Reference to “the given cross-sectional area” should be changed to “the shaft body cross-sectional area” for clarity.
- c. Claims 5, 6, 14, and 15. Reference to “the upper and lower projections” should be changed to “the first and second projections” for consistency as no upper or lower projections are previously recited.
- d. Claim 9. Reference to “the coupling element slot” in lines 6 and 9 of the claim should be changed to “the shaft-receiving slot” for consistency with recitation of such feature in lines 2 and 3-4 of the claim.

- e. Claim 9. Reference to the "shaft upper surface" in lines 10-11 of claim 9 should be changed to "upper shaft surface" for consistency with reference to this limitation in line 7 of the claim.
- f. Claim 10. Reference to "the given cross-sectional area" should be changed to "the shaft-receiving slot cross-sectional area" for clarity.
- g. Claim 12. Reference to "the given distance" in lines 3-4 should be changed to "the through bore distance" for clarity
- h. Appropriate correction is required.

Claim Rejections - 35 USC § 112

- 3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

- 4. Claims 5, 6, 14, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims all recite the limitation "the upper and lower projections". There is insufficient antecedent basis for this limitation in the claims because no upper and lower projections are previously recited.

Claim Rejections - 35 USC § 102

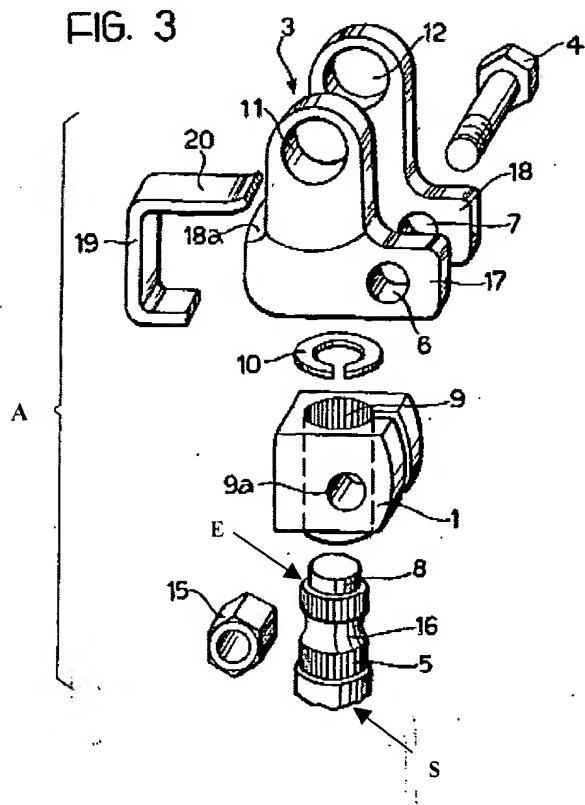
- 5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Pinna (US 4,899,611).

a. Claim 1. Pinna clearly discloses a shaft **S** configured for interconnection with a coupling element **1**, the shaft **S** comprising an axial shaft body **5** having upper and lower surfaces and terminating in a forward end **E**; a bolt receiving recess **16** in the upper shaft surface adjacent the forward shaft end **E**; and at least one projection **8** extending from the shaft forward end **E** adjacent the shaft upper surface (see annotated figure 3 below;).



- b. Claim 2. Pinna further shows the shaft body **5** having a given cross-sectional area and the projection **8** having a cross-sectional area substantially less than the [shaft body **5**] cross-sectional area (see annotated figure 3 above).
- c. Claim 8. Pinna also shows the bolt receiving recess **16** is an annular groove (see annotated figure 3 above).

Claim Rejections - 35 USC § 103

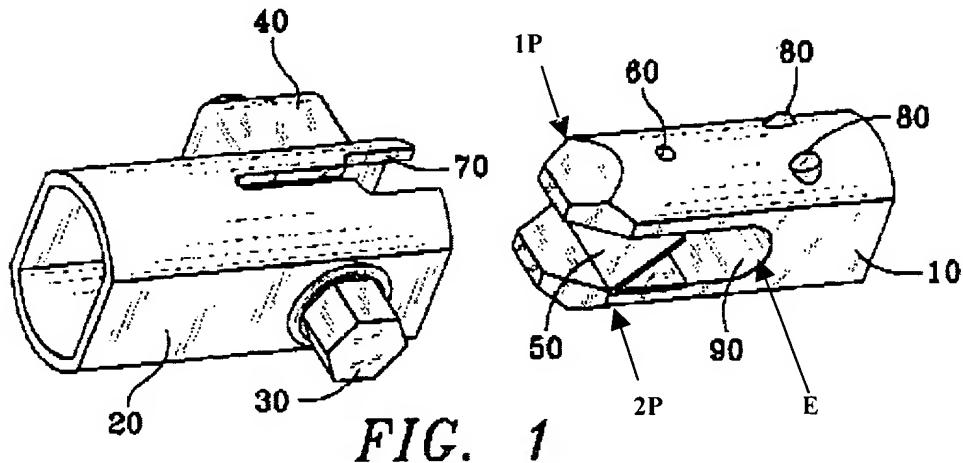
7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Applicant is reminded that this application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinna, as applied above, in view of Wey (US 5,788,400).

a. Claim 4. Pinna, as applied to claim 1 above, discloses a projection **8** extending from the shaft forward end adjacent the shaft lower surface, but fails to disclose a second projection substantially opposed to the projection **8** extending adjacent the shaft upper surface with an open space defined therebetween. Wey, however, teaches a second projection **2P** extending from a shaft forward end adjacent a shaft lower surface, the second projection **2P** substantially opposed to the projection **1P** extending adjacent the shaft upper surface with an open space **90** defined therebetween to provide flexible prongs (see annotated figure 1 below). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the projection of Pinna to include a second projection opposed to the first projection with an open space therebetween as taught by Wey.



- b. Claim 5. The combination of Pinna and Wey, as applied to claim 4 above, includes slight flexibility of the [first] and [second] projections.
- c. Claim 6. The combination of Pinna and Wey, as applied to claim 4 above, includes a shaft body **5** having a given cross-sectional area and the first **1P** and second **2P** projections having a cross-sectional area substantially less than the [shaft body **5**] cross-sectional area (see Pinna annotated figure 3 above and Wey annotated figure 1 above; see also subparagraph 6(b) above).

10. Claims 9, 10, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinna, as applied above.

- a. Claim 9. Pinna shows a shaft coupling assembly **A** comprising a coupling element **1** including a shaft-receiving slot **9**; a retaining bolt **4** extendable through the coupling element **1** adjacent the shaft-receiving slot **9**; an axial shaft body **5** having upper and lower surfaces and terminating in a forward end **E** configured to be inserted in the [shaft-receiving slot] **9**; a bolt receiving recess **16** in the upper shaft surface adjacent the forward shaft end **E** and configured to receive and retain the retaining bolt **4** after the shaft forward end **E** is inserted in the [shaft-receiving slot] **9**; and at least one projection **8** extending from the shaft forward end **E** adjacent the [upper shaft surface] (see annotated figure 3 above). Although Pinna does not explicitly disclose that the projection **8** prevents improper clamping of the shaft forward end **E** and any associated feeling of proper interconnection, a recitation with respect to the manner in which an apparatus is intended to be employed does not impose any structural limitation upon the claimed

apparatus which differentiates it from a prior art reference disclosing the structural limitations of the claim. In re Pearson, 494 F.2d 1399, 181 USPQ 641 (CCPA 1974); In re Yanush, 477 F.2d 958, 177 USPQ 705 (CCPA 1973); In re Finsterwalder, 436 F.2d 1028, 168 USPQ 530 (CCPA 1971); In re Casey, 370 F.2d 576, 152 USPQ 235 (CCPA 1967); In re Otto, 312 F.2d 937, 136 USPQ 458 (CCPA 1963); Ex parte Masham, 2 USPQ2d 1647 (BdPatApp & Inter 1987).

- b. Claim 10. Pinna further shows the shaft-receiving slot **9** having a given cross-sectional area, the shaft body **5** having a cross-sectional area substantially equal to the [shaft-receiving slot **9**] cross-sectional area and the projection **8** having a cross-sectional area substantially less than the [shaft-receiving slot **9**] cross-sectional area (see annotated figure 3 above).
- c. Claim 18. Pinna further shows the bolt receiving recess **16** as an annular groove (see annotated figure 3 above).

11. Claims 3, 7, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinna, as applied above, in view of McClanahan et al (US 5,628,578) (McClanahan).

- a. Claim 3. Pinna, as applied to claim 1 above, fails to disclose that the projection has a tapered tip. McClanahan, however, teaches a tapered tip at the end of the shaft **16** to allow for smooth insertion into the shaft-receiving slot **34** (see figure 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the projection of Pinna to include a tapered tip for smooth insertion as taught by McClanahan.

b. Claim 7. Pinna, as applied to claim 1 above, discloses each limitation of claim 7 except for the bolt receiving recess being a notch. McClanahan teaches a notch **76** in a shaft body **16** in order to receive a transverse bolt **18** (see figure 5 column 6 lines 3-4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the annular bolt receiving recess of Pinna to be a notch as taught by McClanahan.

c. Claim 11. Pinna, as applied to claim 9 above, fails to disclose that the projection has a tapered tip. McClanahan, however, teaches a tapered tip at the end of the shaft **16** to allow for smooth insertion into the shaft-receiving slot **34** (see figure 5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the projection of Pinna to include a tapered tip for smooth insertion as taught by McClanahan.

d. Claim 17. Pinna, as applied to claim 9 above, fails to disclose that the bolt receiving recess is a notch. McClanahan, however, teaches a notch **76** in a shaft body **16** in order to receive a transverse bolt **18** (see figure 5 column 6 lines 3-4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the annular bolt receiving recess of Pinna to be a notch as taught by McClanahan.

12. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pinna, as applied to claim 9 above, in view of Föhl (US 5,816,113). Pinna shows the coupling element 1 includes a bolt receiving through bore **9a** that is spaced a given distance from an opening into the shaft receiving slot **9** but fails to explicitly disclose the projection **8** having a length equal to or greater

than the [through bore] distance. Föhl, however, teaches a projection **26, 26a, 26b** having a length equal to or greater than the distance from the opening to the shaft-receiving slot **14** to a bolt receiving through bore **18** for centering purposes (see figure 2; column 2 lines 57-60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the length of the projection of Pinna in order to improve centering of the shaft as taught by Föhl.

13. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinna, as applied to claim 9 above, in view of Wey.

a. Claim 13. Pinna, as applied to claim 9 above, discloses a projection **8** extending from the shaft forward end adjacent the shaft lower surface (see annotated figure 3 above), but fails to disclose a second projection substantially opposed to the projection **8** extending adjacent the shaft upper surface with an open space defined therebetween. Wey, however, teaches a second projection **2P** extending from a shaft forward end adjacent a shaft lower surface, the second projection **2P** substantially opposed to the projection **1P** extending adjacent the shaft upper surface with an open space **90** defined therebetween to provide flexible prongs (see annotated figure 1 above). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the projection of Pinna to include a second projection opposed to the first projection with an open space therebetween to provide flexible projections as taught by Wey.

- b. Claim 14. The combination of Pinna and Wey, as applied to claim 13 above, includes flexibility in the [first] and [second] projections.
- c. Claim 15. The combination of Pinna and Wey, as applied to claim 13 above, includes the shaft-receiving slot **9** having a given cross-sectional area, the shaft body **5** having a cross-sectional area substantially equal to the [shaft-receiving slot **9**] cross-sectional area and the first **1P** and second **2P** projections having a combined cross-sectional area substantially less than the [shaft-receiving slot **9**] cross-sectional area (see Pinna annotated figure 3 above and Wey annotated figure 1 above).
- d. Claim 16. The combination of Pinna and Wey includes the coupling element **1** having a bolt receiving through bore **9a** that is spaced a given distance from an opening into the shaft receiving slot **9** (Pinna figure 3) as well as the open area **90** having a depth equal to or greater than the [through bore] distance (see Wey figures 1 and 2).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to shaft assemblies:

- U.S. Patent 6,474,898 to Aota et al. (see figure 7 – shows a front portion of a shaft 71 which is greater in length than the distance from the opening of the shaft-receiving slot to the bolt receiving through bore 73)
- U.S. Patent 5,941,131 to Föhl (shows same as noted above in sister patent US 5,816,113)
- U.S. Patent 3,992,119 to Recker (see generally figure 1)

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan M Flandro whose telephone number is (703) 305-6952. The examiner can normally be reached on 8:30am - 5:30pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on (703) 308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 for regular communications and (703) 872-9327 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Ryan M. Flandro
January 8, 2003



Lynne H. Browne
Supervisory Patent Examiner
Technology Center 3670